

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph on page 17, line 12 with this paragraph:

FIG. 7 is a sectional side view taken along line 6-6 7-7 of FIG. 6;

Please replace the paragraph beginning on page 19, line 12 with this paragraph:

The sole structure 14 is shown to include one or more selectively permeable cushioning devices or membranes 28, which are generally disposed in the midsole of the sole structure. By way of example, the membranes 28 of the present invention can be formed into products having various geometries such as the plurality of tubular members which are positioned in a space apart, parallel relationship to each other within the heel region 22 of the midsole 26 as illustrated in FIGS. 1-3. The tubular members are sealed to contain an injected captive gas. The barrier properties of the membrane 28 are preferably provided by a single or multilayer embodiment 30A as shown in FIG. 24 or by the layer 30 as shown in FIGS. 4-5 which is disposed along the inner surface of a thermoplastic outer layer 32. As illustrated in FIGS. 8-18, showing embodiments 28B-28F, the membranes 28 of the present invention, whether monolayer or multi-layer embodiments, can be formed into a variety of products having numerous configurations or shapes. As should be appreciated at this point, membranes 28 which are formed into cushioning devices employed in footwear may either be fully or partially encapsulated within the midsole or outsole of the footwear.

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

Claims 1-175. (cancelled)

176. (currently amended) A method for producing a flexible laminated membrane, comprising the steps of:

(a) extruding a first layer comprising polyurethane including a polyester polyol; and

(b) extruding a second layer of material together with said first layer, said second layer including functional groups with hydrogen atoms which are capable of participating in hydrogen bonding with said first layer of polyurethane;

said membrane polyurethane having a gas transmission rate of 15.0 or less for nitrogen gas for an average thickness of approximately 20.0 mils.

177. (original) The method according to Claim 176, wherein said membrane has a tensile strength of at least about 2,500 psi.

178. (original) The method according to Claim 176, wherein said membrane has an 100% tensile modulus of between 350 to about 3,000 psi.

179. (original) The method according to Claim 176, wherein said membrane has a durometer hardness ranging from about 60 Shore A to about 65 Shore D.

180. (original) The method according to Claim 176, wherein said first and second layers are laminated together at a pressure of at least 200 psi.

181. (original) The method according to Claim 176, wherein said first and second layers are extruded simultaneously.

182. (previously presented) The method according to claim 176, wherein the average thickness of said first and second layers are varied over the length of the membrane.

183. (original) The method according to Claim 176, wherein said membrane has a durability of at least 200,000 cycles under a KIM test analysis wherein said membrane is in the form of a closed container having an average wall thickness of 18 mils and is inflated with nitrogen gas to 20.0 psig.

Claims 184-187. (cancelled)

188. (currently amended) ~~The membrane according to claim 51~~ A flexible membrane, comprising:

a first layer comprising a polyurethane including a polyester polyol and
a second layer formed from a material selected from the group consisting of co-
polymers of ethylene and vinyl alcohol, polyvinylidene chloride, co-polymers of
acrylonitrile and methyl acrylate, polyethylene terephthalate, aliphatic and aromatic
polyamides, crystalline polymers, polyurethane engineering thermoplastics, and
mixtures thereof, wherein said second layer is bonded to said first layer;
said membrane having a gas transmission rate of 15.0 or less for nitrogen gas, wherein
the first layer includes up to about 30 percent by weight of the polyurethane.

189. (cancelled)

190. (previously presented) The method according to claim 176, wherein the polyester polyol is selected from the group consisting of the reaction products of dicarboxylic acids having up to about six carbon atoms and diols having up to about six carbon atoms.

191. (previously presented) The method according to claim 176, wherein the polyester polyol is selected from the group consisting of the reaction products of dicarboxylic acids selected from the group consisting of adipic acid, glutaric acid, succinic acid, malonic acid, oxalic acid, and combinations thereof and diols selected from the group consisting of ethylene glycol, propanediols, butanediols, neopentyl glycol, pentanediols, hexanediols, and combinations thereof.

192. (previously presented) The method according to claim 176, wherein the polyurethane further comprises at least one extender.

193. (previously presented) The method according to claim 176, wherein the first layer includes up to about 70% by weight of the polyurethane.

194. (previously presented) The method according to claim 176, wherein the first layer includes up to about 30 percent by weight of the polyurethane.

195. (currently amended) The method according to claim 176, wherein the membrane polyurethane has a gas transmission rate of 7.5 or less for nitrogen gas for an average thickness of approximately 20.0 mils.

196. (new) A method for producing a flexible laminated membrane, comprising the steps of:

- (a) extruding a first layer comprising polyurethane including a polyester polyol; and
- (b) extruding a second layer of material together with said first layer, said second layer including functional groups with hydrogen atoms which are capable of participating in hydrogen bonding with said first layer of polyurethane; said polyurethane having a gas transmission rate of 10.0 or less for nitrogen gas for an average thickness of approximately 20.0 mils.

AMENDMENTS TO THE DRAWINGS

The attached sheets of drawings include changes to Figures 20 and 23. The attached sheets, which includes Figures 19-23, replace the original sheets including Figures 19-23.

A copy of the original sheets highlight the changes in red ink.

REMARKS

Claims 176-183, 188, and 190-196 are now pending in the application. Claims 51, 52, 184-187 and 189 have been cancelled with this amendment and claims 1-50 and 53-175 were previously cancelled. Claim 188 has been rewritten in independent format. Claim 176 has been amended to specify that it is the polyurethane that has the stated gas transmission rate, as disclosed in the description and examples on pages 44 to the top of page 50. Dependent claim 195 has been amended accordingly. New claim 196, in which the gas transmission rate is 10.0 or less, has been added. The Examiner is respectfully requested to reconsider and withdraw the rejection(s) in view of the amendments and remarks contained herein.

DRAWINGS

The drawings stand objected to for failing to comply with 37 CFR 1.84(p)(5). The brief description of the drawings notes a line 6—6 in Fig. 6 that does not exist. There is, however, one single line in Fig. 6: line 7—7. Applicants have amended the specification on page 17 at line 12 to correct this obvious error.

Reference signs 28B, 28C, 28D, 28E, and 28F appear in Figures 8-18 but are not mentioned in the description. The paragraph beginning on page 19, line 12 has been amended to refer to these reference signs. The identity of the reference signs is apparent from the context of this original paragraph, from the figures themselves, and from the description of these figures in the Brief Description of the Drawings section.

Reference signs 130 and 132 appear in Figure 20 but are not mentioned in the description. Reference sign 170 appears in Figure 21 but is not mentioned in the

description. Applicants present replacement figures in which reference signs 130, 132, and 170 have been removed.

In view of the amendments, Applicants request that the replacement drawings be entered and the objections to the drawings be withdrawn.

PRIORITY

The Office Action includes a section on Priority noting that this application claims subject matter disclosed in prior Application No. 09/436,869. It appears from this section that the Application Data Sheet filed on September 27, 2001 with this application was either separated from the rest of application papers or has been overlooked. Applicants enclose a copy of the Application Data Sheet, the Utility Patent Application Transmittal noting that the Application Elements included an Application Data Sheet, a copy of the express mail label, and a copy of the return receipt post card by which the USPTO acknowledged receipt of the application elements, including the Application Data Sheet. Applicants have also received a filing receipt listing the "Domestic Priority data as claimed by applicant" that includes all of the prior applications mentioned in the Application Data Sheet.

Accordingly, Applicants submit that they have complied with the conditions for receiving the benefit of an earlier filing date under 35 U.S.C. § 120.

REJECTIONS UNDER 35 U.S.C. § 102

Claims 51, 52, 176-181, 183, 189, and 195 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Mitchell et al. (U.S. Pat. No. 5,952,065), as evidenced by

a Technical Information sheet on Pellethane 2355-80AE from Dow Plastics (The Dow Chemical Company). Claims 51, 52, and 189 have been cancelled. This rejection is respectfully traversed with respect to the rejected claims remaining in the application, claims 176-181 and 183.

The present claims require that the polyurethane itself having a gas transmission rate of about 15.0 or less. The Mitchell patent does not teach using a thermoplastic polyurethane that has such a gas transmission rate. The only reference Applicants can find in Mitchell to the gas transmission rate of a thermoplastic polyurethane is Figure 19, which indicates a gas transmission rate more than twice as high – 30.21 – for a TPU monolayer. The Mitchell patent teaches that, prior to the Mitchell invention, the art had employed single-layer gas barrier films of rigid materials such as PVDC. Col. 3, lines 6-14. As the technology advanced, these films were combined with a flexible film layer to overcome difficulties such as poor elasticity and flex fatigue. Col. 3, lines 14-28. The Mitchell patent offers an improved laminate, but a laminate that still has a rigid gas barrier material and a flexible material that has poor gas barrier properties. The flexible thermoplastic polyurethane of the examples, as already pointed out, has a gas transmission rate of a little over 30. The Mitchell flexible thermoplastic polyurethane provides superior heat sealing properties, flexural fatigue strength, a suitable modulus of elasticity, tensile, and tear strength, and abrasion resistance. Col. 9, lines 11-16. It is the rigid, inner layer of gas barrier materials that is “primarily responsible for controlling gas permeation.” Col. 9, lines 36-37.

Because the Mitchell patent does not teach or disclose a thermoplastic polyurethane that has a gas transmission rate of about 15.0 or less, the Mitchell patent

does not anticipate the present claims. Accordingly, Applicants respectfully request withdrawal of the rejection and reconsideration of the claims.

Claims 51, 52, 184, 185, and 189 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Murakami (U.S. Pat. No. 5,578,372). The rejected claims have been cancelled, rendering this ground of rejection moot.

Claims 51, 52 and 189 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Martin (U.S. Pat. No. 4,513,058). The rejected claims have been cancelled, rendering this ground of rejection moot.

REJECTION UNDER 35 U.S.C. § 103

Claims 51, 52, 176, 181, 186, 189, 192, and 195 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over “Polymer Applied Technology,” translation of JP 58-22163 [“Tokobi”], in view of Mitchell et al. (U.S. Pat. No. 5,952,065). Claims 51, 52,

186, and 189 have been cancelled. This rejection is respectfully traversed with respect to the rejected claims remaining in the application, claims 176, 181, 192, and 195.

Claim 176 is a method for producing a flexible membrane. The Tokobi reference prepares a gas barrier laminates for airships or hot air balloons that include a layer of materials such as Tedlar, Kevlar, and Diawheel that are not elastic, so the Tokobi reference describes a method of preparing membranes that are also not elastic.

Further the Tokobi reference does not teach a method including extruding a first layer comprising polyurethane that has a gas transmission rate of 15.0 for nitrogen gas as set out in the claim. Moreover, the Tokobi reference is concerned with flexibility, not gas transmission rate, so there would be no motivation to modify the materials extruded to obtain Applicants' gas transmission rate.

For these reasons, Applicants submit that the present invention is patentable over the Tokobi reference, and respectfully request reconsideration and allowance of the claims.

REJECTION FOR DOUBLE PATENTING

Claims 51, 52, 184-187, and 189 stand rejected for obviousness-type double patenting over claims 51, 52, 2, 3, 5, 7, 25, and 33 of U.S. Patent No. 6,013,340. This rejection is mooted by the cancellation of these claims.

ALLOWABLE SUBJECT MATTER

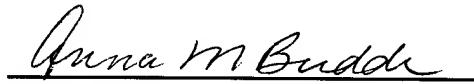
Applicants note with appreciation the Examiner's statement that claims 182, 188, 190, 191, 193, and 194 would be allowable if rewritten in independent form. Claim 188

has been rewritten in independent form and, accordingly, should be in condition for allowance.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,


Anna M. Budde
Anna M. Budde
Registration No. 35,085

September 15, 2003
Harness, Dickey & Pierce, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

Title: Membranes Of Polyurethane Based Materials Including Polyester Polyols

Inventors: Henry W. Bonk et al

Atty. Ref. No.: 402200004DVG - Attorney: Anna M. Budd

Telephone: (248) 641-1600

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COPY SHOWING CHANGES

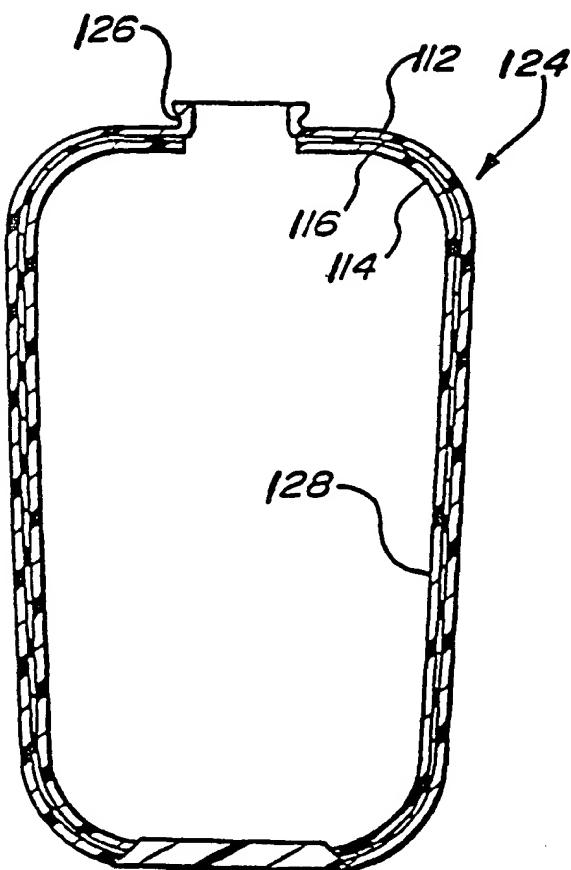


Fig-19

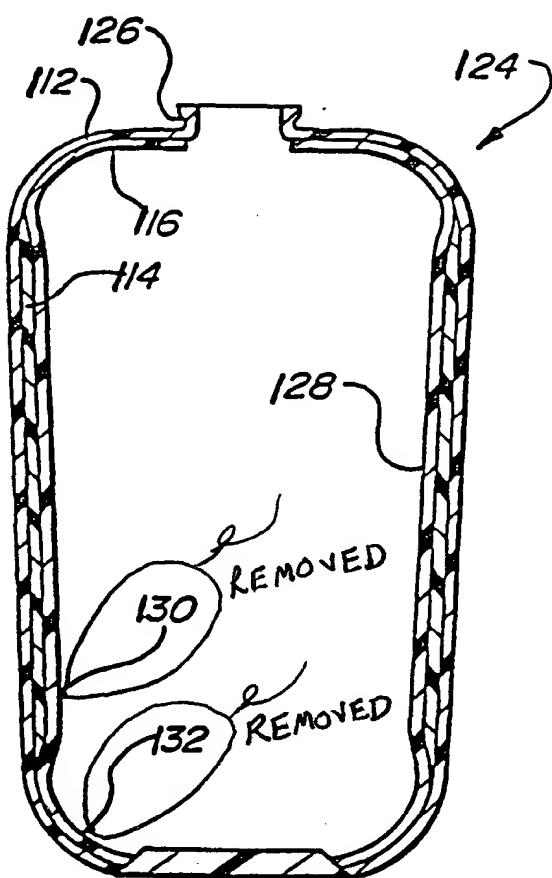


Fig-20

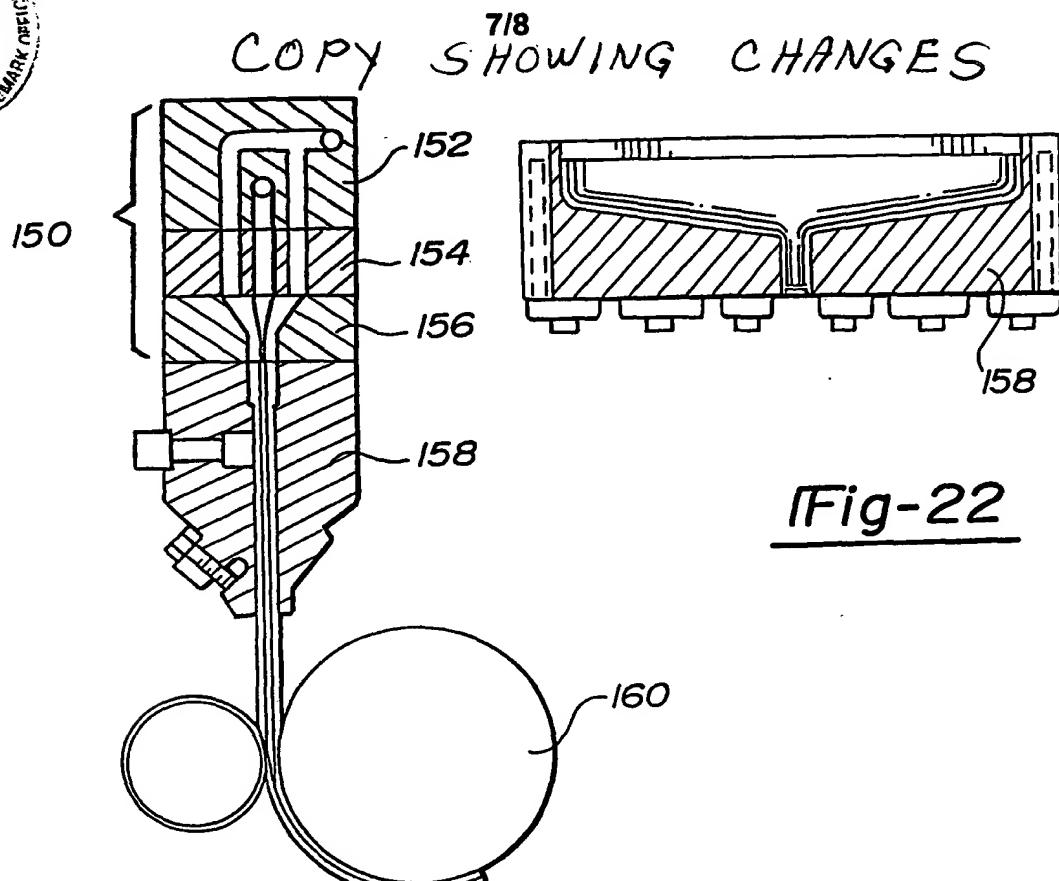


Fig-22

Fig-21

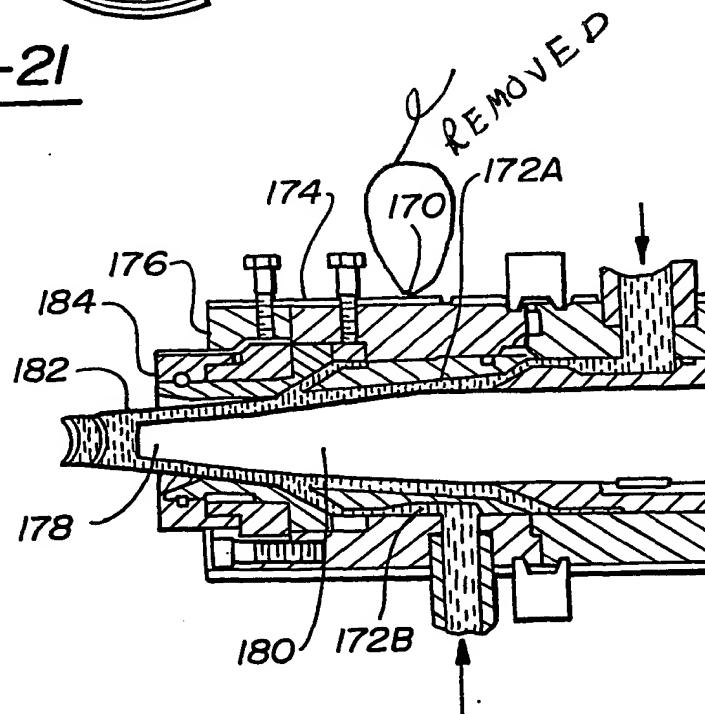


Fig-23